

Evaluating Environmental Flows for the Rio Grande Silvery Minnow

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EWN workshop
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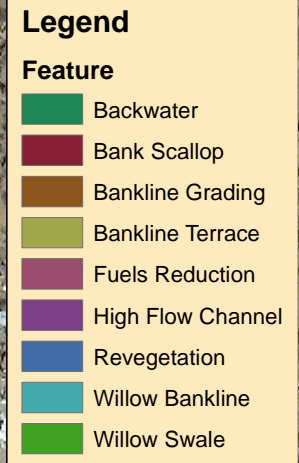
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Environmental Flow function of Geomorphology Hydrology Ecology



Spawning and Nursery Habitat



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Recruitment Analysis

Evaluate spring runoff flows for fish recruitment and overbanking flows through the Middle Rio Grande Valley



- Analysis: focus on recruitment trends (young fish produced May-July)
- Question: production determined by ...
 - Spring volume?
 - Spring hydrograph?
 - Inundation area?



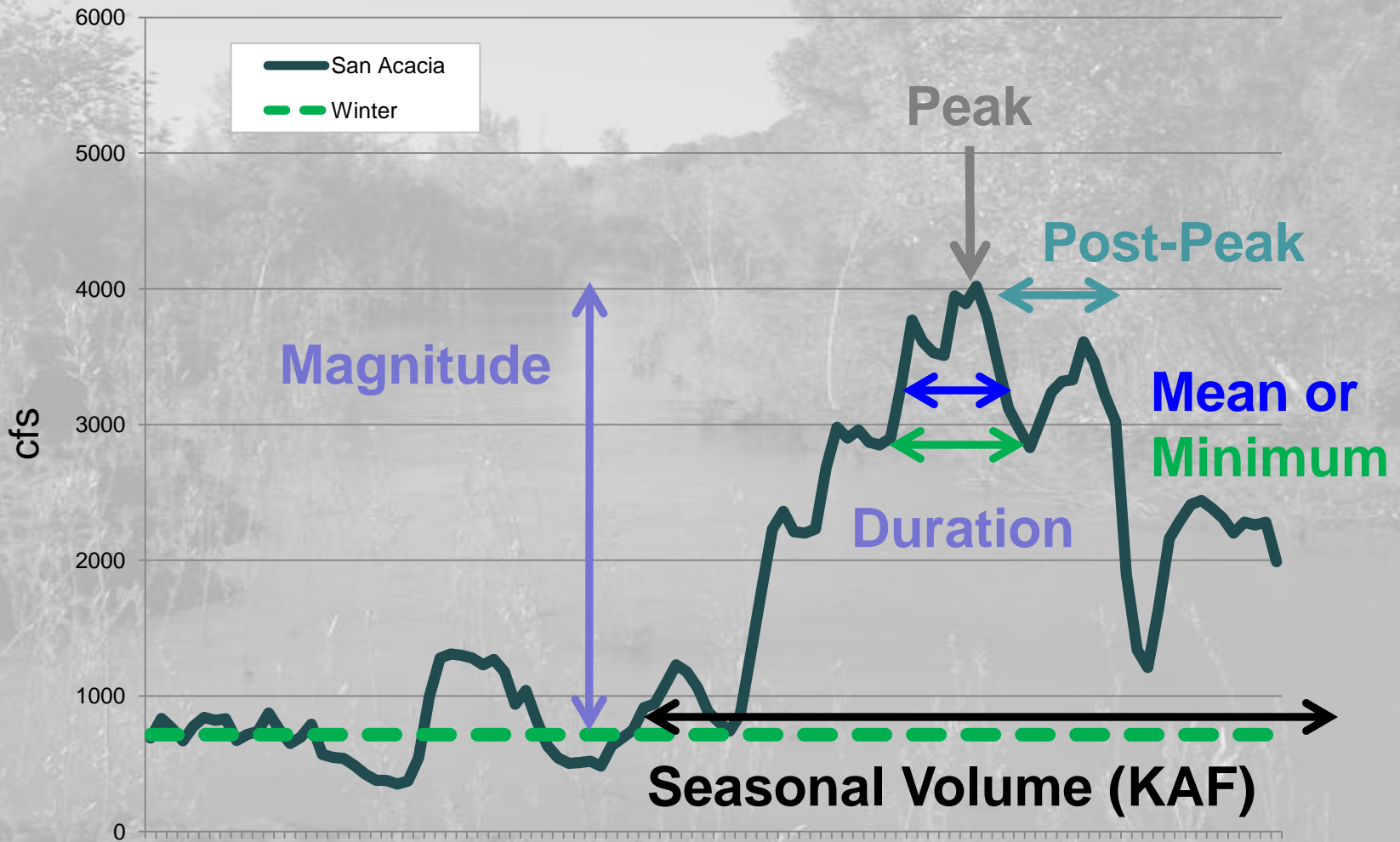
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Environmental Flow

- Analysis: focus on population and production trends
 - Exploratory data analysis
 - Spring hydrograph – How to describe the hydrograph?
- Spring volume – three month volume (acre-feet)
- Inundation area – as a function of five day mean flow (acres)
- Spring hydrograph?
 - Peak Flow (cfs)
 - Mean or Minimum Flow (cfs) for how many days (5, 7, 9, ...?)
 - Distribution of flow (around or following peak?)
 - Number of days (May-July) above a target flow (cfs)



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Flow Metrics

Evaluated different ways (28) to describe spring flow

Peak flow (cfs)

April - June volume (KAF)

5, 7, 9, 11 day mean & minimum cfs

May - July volume (KAF)

15, 20, 30 day minimum cfs

Total Inundated Area (acres)

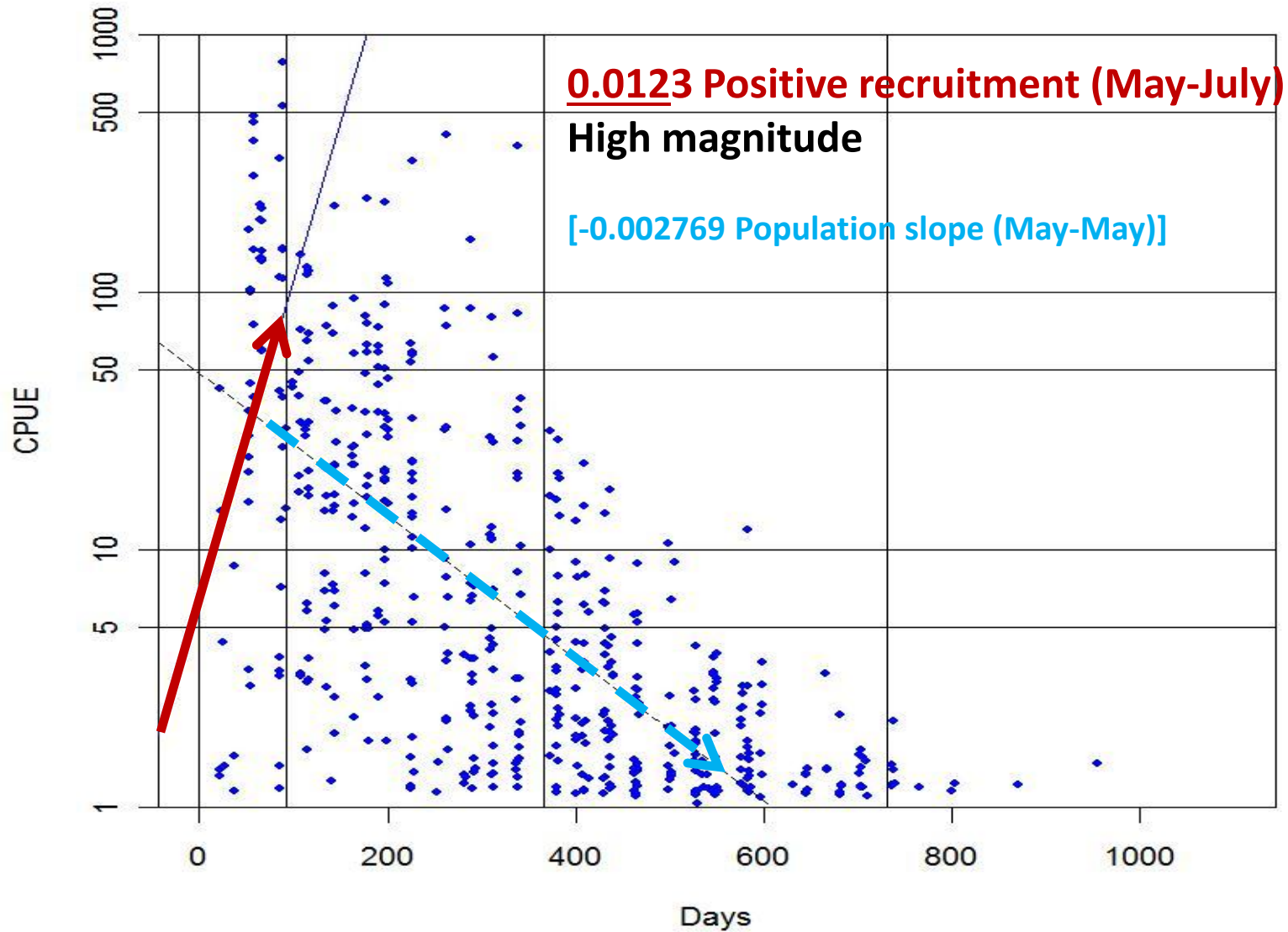
Days above 1000-6500 cfs

Better r^2 using post-peak versus symmetrical metrics

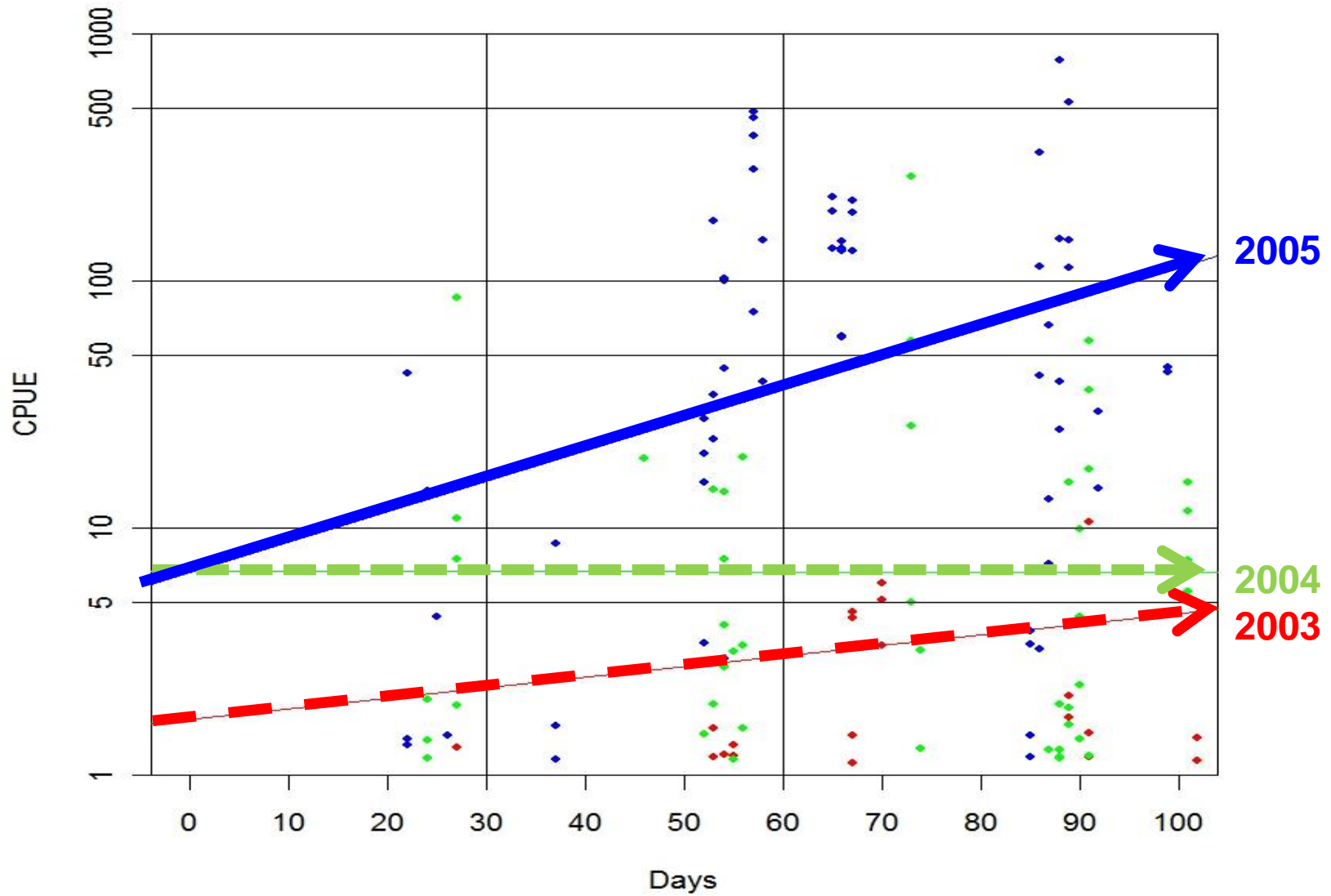


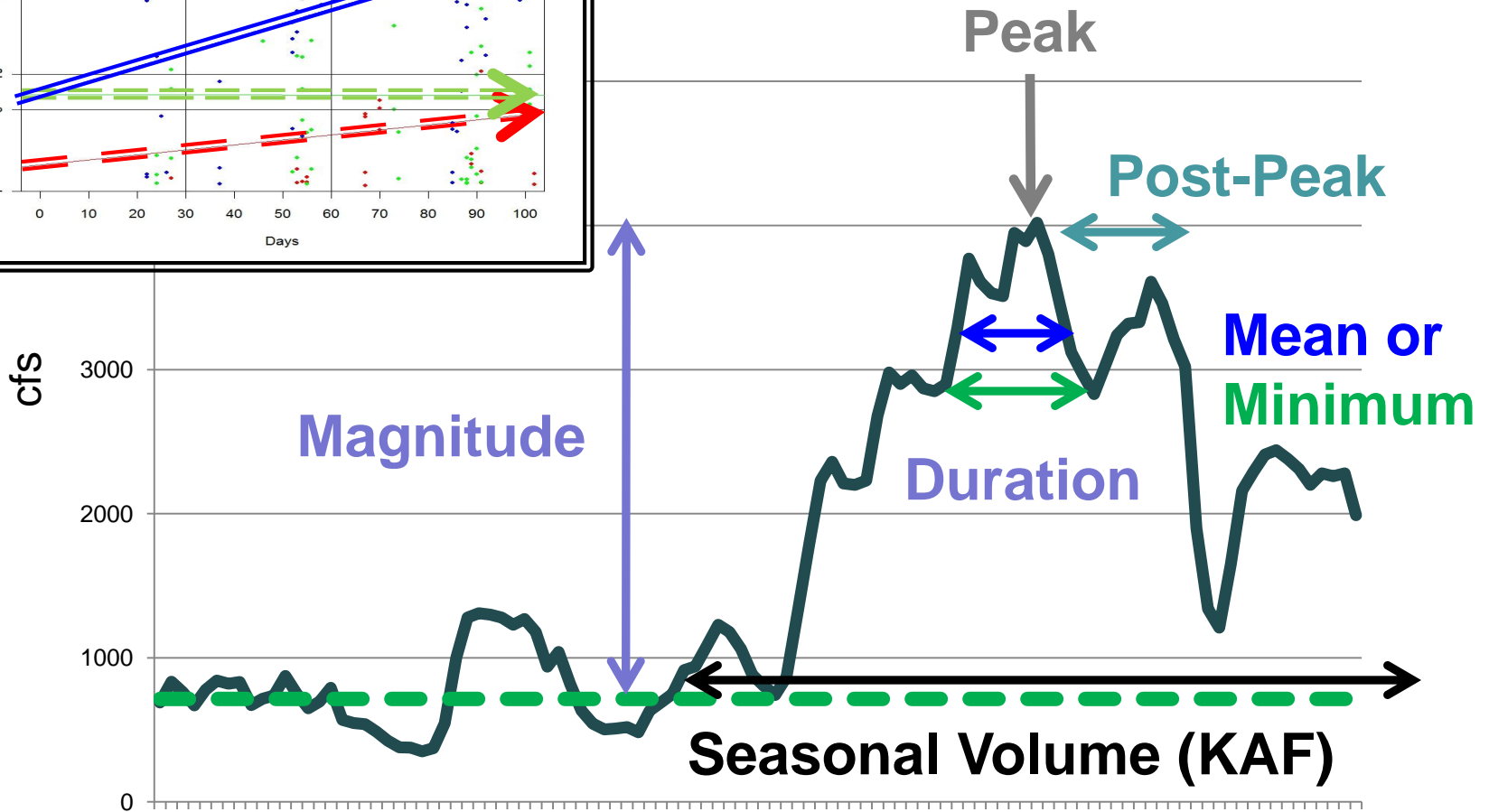
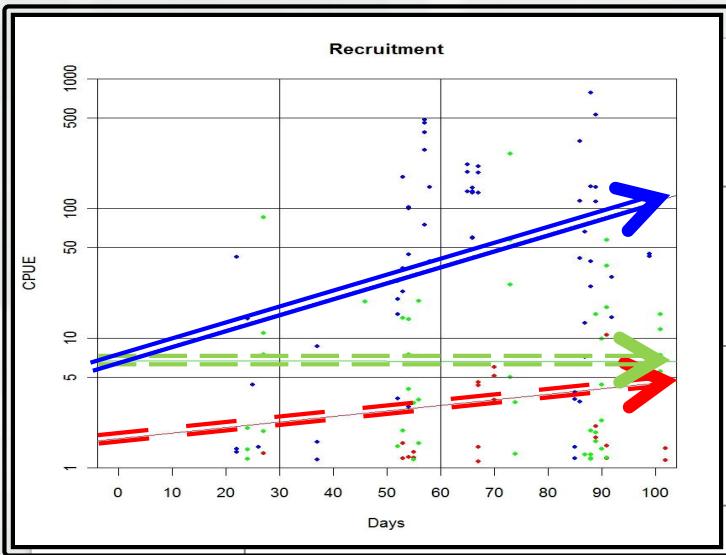
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Recruitment





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Questions?



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